Grove - IR Distance Interrupter

User Manual

Release date： 2015/9/22

Version： 1.0

Wiki: http://www.seeedstudio.com/wiki/Grove_-_IR_Distance_Interrupt

Bazaar: http://www.seeedstudio.com/depot/Grove-IR-Distance-Interrupter-p-1278.html?cPath=25_31

Document Revision History

Revision	Date	Author	Description
1.0	Sep 22, 2015	Loovee	Create file

Contents

Document Revision History 2
1. Introduction 2
2. Features 3
3. Application Ideas 4
4. Specification 5
5. Interface 6
6. Usage 7
   6.1 With Arduino 7
   6.2 With Raspberry Pi 8
7. Resource 10

Disclaimer

For physical injuries and possessions loss caused by those reasons which are not related to product quality, such as operating without following manual guide, natural disasters or force majeure, we take no responsibility for that.

Under the supervision of Seeed Technology Inc., this manual has been compiled and published which covered the latest product description and specification. The content of this manual is subject to change without notice.

Copyright

The design of this product (including software) and its accessories is under tutelage of laws. Any action to violate relevant right of our product will be penalized through law. Please consciously observe relevant local laws in the use of this product.

1. Introduction

This IR Distance Interrupter features a high-sensitivity RFR-359F photoreflector to perform distance detection function. The photoreflector consists of a GaAs infrared light emitting diode and a silicon planar phototransistor. When the infrared light emitted by the emitter gets reflected on a surface that blocked it, the phototransistor can pick up the signal for distance calculation. This module is panel mounted so that you can easily implement it on the surface of robots or other projects without wiring clutter. Also a potentiometer for adjustment and an indicator LED are arranged on the back for easy and clear use.

2. Features

- High sensitivity photoreflector
- Lightweight and compact
- Panel mount design for clean and tidy implementation
- Clear HID design: adjustment potentiometer and indicator LED

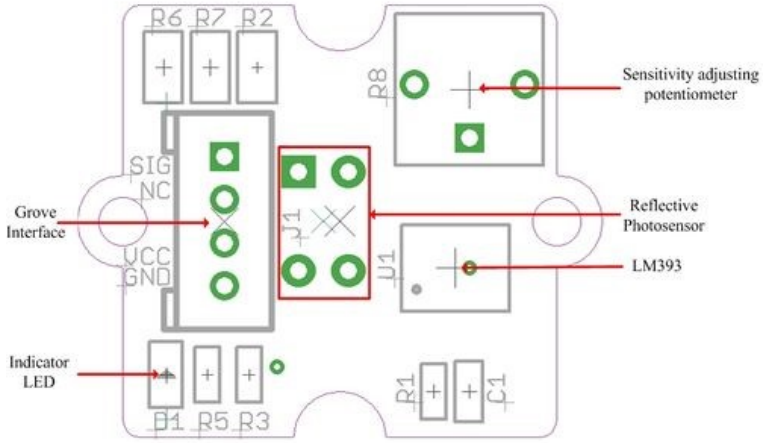
3. Application Ideas

- Wanderer robots
- RPM gauges
- Approximation detection

4. Specification

Power supply	5V DC
Connector	4 pin Buckled Grove interface
Compatibility	Compatible with Arduino
Digital output mode	TTL (Low when light is detected)
Dimension	20mm*20mm
ROHS	YES

5. Interface



- **Reflective photosensor**: High resolution Infrared Reflective sensor.
- **LM393**: Rail-to-Rail Operational Amplifier.
- **Indicator LED**: The LED will turn on when the received infrared light intensity exceeds a preset level.
- **Sensitivity adjusting potentiometer** : Adjust the light threshold of the sensor.

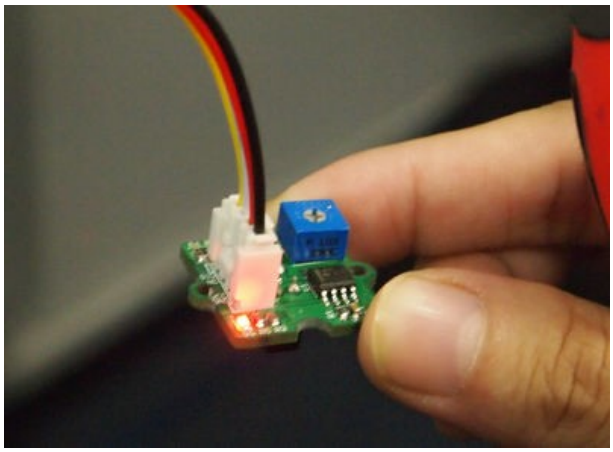
6. Usage

6.1 With Arduino

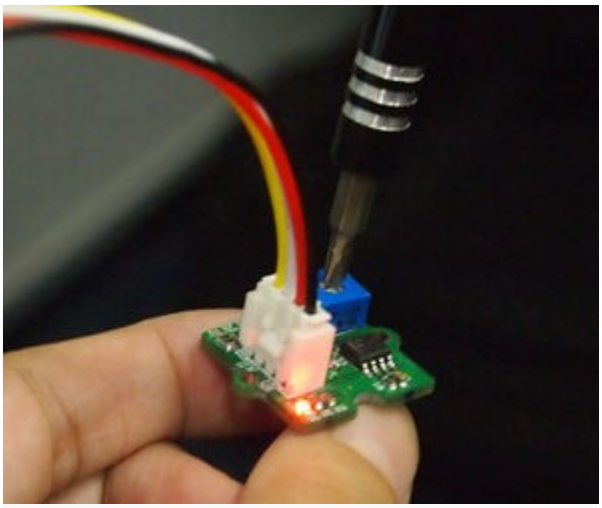
Let's test the function of detecting whether somebody is here.

1. Plug the Grove-IR Distance Sensor onto port D6 of the Grove - Base Shield;

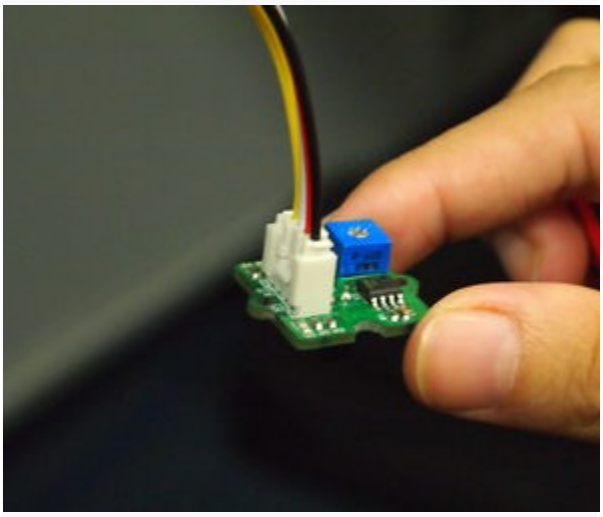
2. Hold the sensor Sensor facing the empty dark area above the background as show below.



3. Adjust the potentiometer with a crosshead screwdriver until the indicator LED just change from on to off.



Under the adjustment state



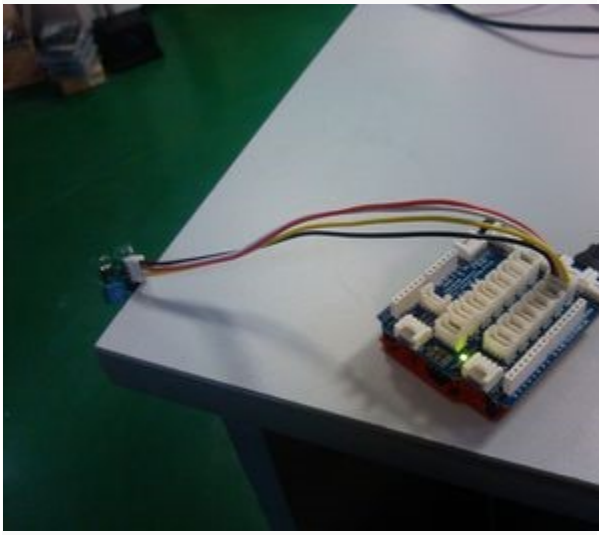
Complete the adjustment

4. Create an Arduino sketch and copy the program below to it.

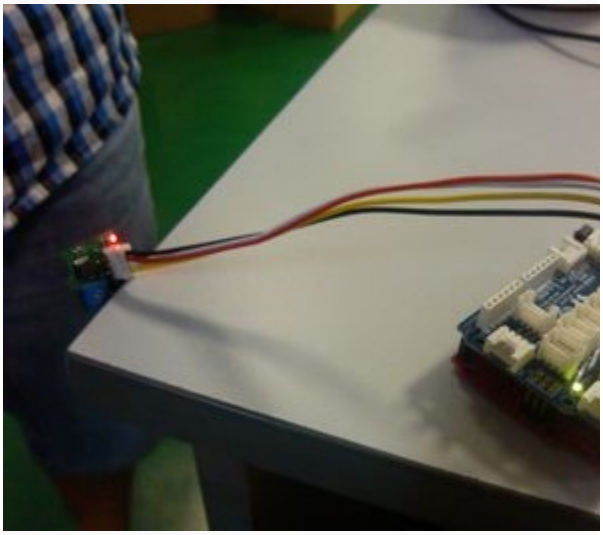
```
void setup()  {
    Serial.begin(9600);
    pinMode(6,INPUT);
}
```

```
void loop()  {
    while(1)  {
        delay(500);
        if(digitalRead(6)==LOW)  {
            Serial.println("Somebody is here.");
        }
        else  {
            Serial.println("Nobody.");
        }
    }
}
```

5. Upload the code.If you do not know how to upload ,please click here. You can see the result as show below.



Nobody



There has somebody

When somebody is here,Indicator Led will be light and the Serial Monitor will output "Somebody is here.".

Or,The Indictor LED is off and the Serial Monitor output "Nobody.".

6.2 With Raspberry Pi

1. You should have got a raspberry pi and a grovepi or grovepi+.

2. You should have completed configuring the development enviroment, otherwise follow here.

3. Connection

- Plug the sensor to grovepi socket D4 by using a grove cable.

4. Navigate to the demos' directory:

```
cd yourpath/GrovePi/Software/Python/
```

- To see the code

```
nano grove_infrared_distance_interrupt.py    # "Ctrl+x" to exit #
import time
import grovepi

# Connect the Grove Infrared Distance Interrupt Sensor to digital port D4
# SIG,NC,VCC,GND
sensor = 4

grovepi.pinMode(sensor,"INPUT")

while True:
    try:
        # Sensor returns LOW and onboard LED lights up when the
        # received infrared light intensity exceeds the calibrated level
        if grovepi.digitalRead(sensor) == 0:
            print "found something"
        else:
            print "nothing"

        time.sleep(.5)

    except IOError:
        print "Error"
```

5. Run the demo.

```
sudo python grove_infrared_distance_interrupt.py
```

7. Resource

- IR Distance Interrupt Eagle File
- Reflective Photosensor Datasheet
- LM393 Datasheet